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WE CLAIM:

1. Microparticles comprising a pharmaceutically active carbamate and a biodegradable polymer.
- 5 2. The microparticles of claim 1 wherein the biodegradable polymer is polyester, poly(phosphate), poly (anhydride), poly(ortho ester) or a mixture thereof.
3. The microparticles of claim 2 wherein the polyester is poly(d,l-lactide-co-glycolide), poly(caprolactone), polycarbonate or a mixture thereof.
- 10 4. The microparticles of claim 3 comprising a mixture of a first and a second polymer wherein the second polymer is more hydrophobic than the first polymer.
- 15 5. The microparticles of claim 4 wherein the first polymer is poly(d,l-lactide-co-glycolide) and the second polymer is a polyester, poly(anhydride) or poly(ortho ester).
- 20 6. The microparticles of claim 3, wherein the carbamate is physostigmine, heptylphysostigmine, neostigmine, pyridostigmine, galanthamine, tetrahydroacridine, velnacrine, or a mixture thereof.
7. The microparticles of claim 6 wherein the biodegradable polymer is poly(d,l-lactide-co-glycolide).
- 25 8. The microparticles of claim 7, wherein the carbamate is physostigmine.
9. The microparticles of claim 7, wherein the carbamate is pyridostigmine.

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10. The microparticles of claim 8, wherein the poly(d,l-lactide-co-glycolide) has an average molecular weight range of about 4,000 to about 100,000.

11. The microparticles of claim 10, wherein the poly(d,l-lactide-co-glycolide) 5 contains lactide and glycolide in a ratio of lactide:glycolide of 85:15, 75:25, 65:35 or 50:50.

12. The microparticles of claim 10, wherein the poly(d,l-lactide-co-glycolide) has an average molecular weight range of about 14 000 to 42 000.

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13. The microparticles of claim 11, wherein the concentration of the polymer is about 2% to 6% w/v.

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14. The microparticles of claim 13, wherein the concentration of the carbamate is about 10% w/w.

15. A sustained release formulation comprising microparticles wherein the microparticles comprise a pharmaceutically active carbamate and a biodegradable polymer.

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16. The formulation of claim 15 which is an oral or parenteral preparation.

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17. The formulation of claim 15 that provides sustained release of the carbamate for up to about 48 hours, wherein the carbamate is physostigmine and the polymer is poly(d,l-lactide-co-glycolide) containing lactide and glycolide in a ratio of 50:50 and the concentration of the carbamate is 10% w/w of the microparticles.

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18. The microparticles of claim 8 that provide sustained release of the carbamate for at least one week, wherein the concentration of the carbamate is 10% w/w.

19. The formulation of claim 15 further comprising an anti-cholinergic agent.

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20. A method of preparing a sustained release formulation of a pharmaceutically active carbamate comprising microencapsulating the carbamate with a biodegradable polymer.

10 21. The method of claim 20, wherein the carbamate is physostigmine, heptylphysostigmine, neostigmine, pyridostigmine, galanthamine, tetrahydroacridine, velnacrine, or a mixture thereof.

15 22. The method of claim 21 wherein the biodegradable polymer is polyester, poly(d,l-lactide-co-glycolide), poly(phosphate), poly(anhydride), poly(ortho ester), or a mixture thereof.

23. The method of claim 22 wherein the polymer is poly(d,l-lactide-co-glycolide).

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24. The method of claim 23 wherein the carbamate is physostigmine.

25. The method of claim 24, wherein the step of microencapsulation is effected by spray drying.

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26. The method of claim 25, comprising the step of mixing the carbamate and the polymer in a volatile organic solvent prior to spray drying.

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27. The method of claim 26 wherein the solvent is ethyl acetate.
28. The method of claim 27, wherein the spray drying is performed at an inlet temperature of about 50°C to 60°C.